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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Si-Hyun Song

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EXAMINER

ADAMS, GREGORY W

ART UNIT

PAPER NUMBER

3652

MAIL DATE

DELIVERY MODE

10/20/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/673,398	Applicant(s) SONG, SI-HYUN	
	Examiner GREGORY W. ADAMS	Art Unit 3652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 7-13 and 26 is/are pending in the application.
- 4a) Of the above claim(s) 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a plurality of thin film transistors, color filter, liquid crystal layer between said first mother substrate and second mother substrate and a sealant must be shown or the feature(s) canceled from the claim(s). Although FIGS. 1A, 1B disclose an LCD these are presumed well known in the art as labeled and not considered part of Applicants invention. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

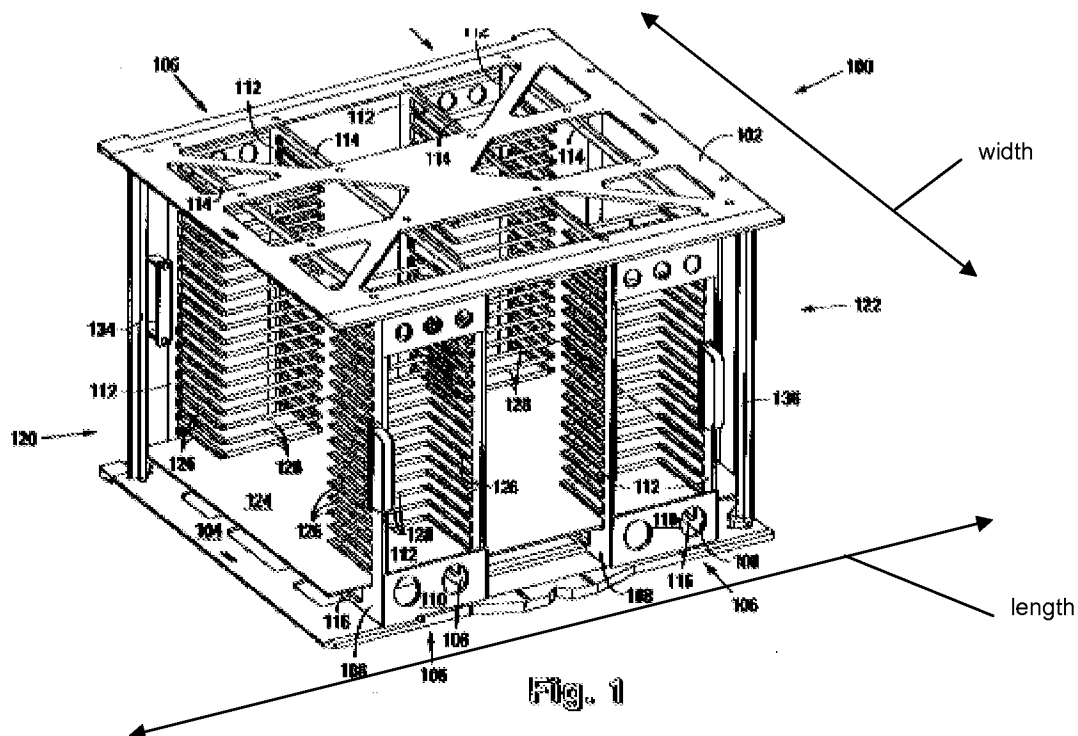
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 & 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babbs (US 5,823,361) (previously cited) in view of in view of Betsuyaku (US 6,006,919) (previously cited) and Applicants Admitted Prior Art (hereinafter "AAPA"; see Specification paras. [0003-0009]; FIGS. 1A, 1B), Von Gutfeld (US 6,219,126). Babbs discloses a cassette device comprising-

- a frame 108 having a length greater than a width as well as a height, wherein a length and width of a frame correspond to a length of width of inserted mother substrates, respectively (see FIG. 1 reproduced below);
- a first support members 126 protruding from a first side of a frame and second support members 126 protruding from a second opposing side of a frame;
- a robot arm (C2/L7-11);
- first supporting bars 128 connected to first support members and second supporting bars 128 connected to second support members, wherein supporting bars are disposed a distance from a frame,
- wherein first and second supporting bars 128 contact and support a lower surface of an inserted mother substrates along first and second parallel sides

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of an inserted mother substrates at opposing parallel regions of a first lower surface, wherein first supporting bars are configured slightly spaced from each other and second supporting bars are slightly spaced (e.g. in a vertical sense) from each other, so that first and second supporting bars are in contact with substantially a whole width of the of first and second parallel sides of inserted mother substrates to uniformly distribute a load to the patterned spacers in substantially the whole width of the first and second parallel sides of the inserted mother substrates across the substrate.



Babbs does not disclose rectangular supporting bars connecting two support members.

Babbs recognizes that mother glass boards (e.g. substrates) are “generally flat, rectangular plates made of amorphous glass with various sizes, including relatively large FPDs measuring 550 millimeters (mm) by 650 mm by 1.1 mm thick. The FPD industry trend, however, is towards larger substrates measuring 700 mm by 1000 mm,

850 mm by 1050 mm, and larger. Further, the trend is towards thinner substrates having thicknesses of 0.7 mm.” C1/L12.

Betsuyaku discloses a liquid crystal display panel cassette including rectangular supporting bars (FIG. 4: 3) that per international agreement improves “durability, sealing performance, good anti-staining performance, unmanned use, automation, ease of cleaning, etc.” C1/L28. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Babbs to include rectangular supporting bars as per the teachings of Betsuyaku, to improve LCD cassette performance.

Babbs does not disclose supporting bars disposed at a distance of about 170mm from a frame. However, Babbs discloses supporting bars of some distance from a frame, recognizes that sagging substrates require longitudinal support, and that the industry trend is coordinate cassette size to substrates having dimensions such as 650mm, 550mm, 700mm, 1000mm, 850mm, 1050mm, and thicknesses of 1.1mm & .7mm. C4/L26-40. A skilled artisan knowing Babbs’ apparatus solves sag which is affected by width of supports would know to size Babb’s apparatus at any size that prevents sag, including 170mm, a dimension well within the range of sizes Babb's support members are designed to support. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Babbs to include supporting bars disposed at a distance of about 170mm from a frame as is well known when supporting large substrates and preventing sag.

As noted above Babbs discloses supporting LCDs of which AAPA discloses a mother substrate includes a first mother substrate having a plurality of panel regions having a plurality of thin film transistor, a second mother substrate having a plurality of panel regions having a color filter, a liquid crystal layer between a first mother substrate and second mother substrate, and a bond between first and second mother substrates. AAPA teaches this is a well known type of LCDs to skilled artisans. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Babbs to include a first mother substrate having a plurality of panel regions having a plurality of thin film transistor, a second mother substrate having a plurality of panel regions having a color filter, a liquid crystal layer between a first mother substrate and second mother substrate, as per the teachings of AAPA, as is well known to skilled artisans.

Von Gutfeld discloses a sealant 2 between first 1a and second 1b substrates to bond first and second substrates which is a well known means for sealing LCDs to skilled artisans. C1/L13-30; C4/L10-24. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Babbs to include Von Gutfeld's sealant as is well known to skilled artisans in manufacturing LCDs.

With respect to claim 2, Babbs discloses a frame, support members 126 protruding from opposing sides, and two support bars 125 connecting two support members 126. Babbs does not disclose acetal resin. Referring to FIGS. 1-2 Stadler et al. disclose support bars 8 of acetal resin which is resistant to cleaning agents and

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etchants and that do not contaminate substrate. C5/L39-46. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Babbs' supports to include acetal resin, as per the teachings of Stadler et al., such that supports resist cleaning agents and etchants and will not contaminate substrates.

Response to Arguments

Applicant's arguments filed Sept. 19, 2008 have been fully considered but they are not persuasive. No arguments were submitted. The amendments have been addressed in the rejection above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY W. ADAMS whose telephone number is (571)272-8101. The examiner can normally be reached on M-Th, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saul Rodriguez can be reached on (571) 272-7097. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gregory W Adams/
Primary Examiner, Art Unit 3652